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MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2017/2018

BFN3174 – FINANCIAL MODELLING

(All sections / Groups)

12 OCTOBER 2017 9.00 a.m. - 11.00 a.m. (2 Hours)

INSTRUCTIONS TO STUDENTS

- 1. This question paper consists of 14 pages.
- 2. Answer <u>ALL FOUR</u> questions in FOUR SEPARATE Excel spreadsheets in ONE SINGLE Excel file.
- 3. Your Excel file should be named with your **STUDENT ID**, followed by your **NAME**, for example: **1111111623_HISHAM.xls**
- 4. SAVE your answers for all questions in the provided THUMB-DRIVE.
- 5. Please also copy your answers together with formulas onto the given templates of Excel spreadsheets in the **APPENDIX**.
- 6. Mark distributions are shown in the given templates.

QUESTION 1 (25 MARKS)

On 19 July 2017, you are offered a US Treasury note. Here are the terms of the note:

- The note has a face value of \$100,000 and 8% coupon rate. The note matures on 1 December 2023.
- The semi-annual interest on the note is paid on 1 June and 1 December of each year.
- The last interest payment was 1 June 2017 and the next interest payment is on 1 December 2017.
- Other interest payments are on 1 June 2018, ..., 1 December 2023. On this last date of the bond's principal of \$100,000 is also returned.
- On 19 July 2017, the quoted bond price is \$110,000.

Using the provided template in the Appendix to model the following questions:

a. Calculate the accrued interest for the bond.

(8 marks)

b. Compute the actual bond price.

(9 marks)

c. Use XIRR and YIELD functions in Microsoft Excel to calculate the annualized yield to maturity (YTM).

(8 marks)

QUESTION 2 (25 MARKS)

a. Hazal Automation has just announced results that show that the free cash flow (FCF) for the past year is RM100 million. An experienced analyst believes that the growth rate of the Hazal Automation for the next 10 years will be 15% per year and that after 10 years the growth rate will be 7% annually. Hazal Automation's weighted average cost of capital (WACC) is 16%, and the company has 100 million shares outstanding. Value the shares assuming that the FCFs occur at year end. Hazal Automation has no debt and no excess cash reserves.

(20 marks)

b. Suppose that the FCFs occur mid-year. What would your answer be now?

(5 marks)

Continued...

QUESTION 3 (25 MARKS)

Considering the following data concerning Ivanka Company (Ivana's stock is not currently listed on a stock exchange).

- Expected return for the market portfolio, $E(r_M) = 15\%$
- Cost of debt, $r_D = 8\%$
- Corporate tax rate, $T_c = 35\%$
- Covariance between Ivanka Company's stock prices and market portfolio index prices, $Cov(r_{Ivanka}, r_M) = 0.5$
- Value of debt, D = RM10,000,000
- Risk free rate, $r_f = 3\%$
- Variance for the market portfolio, $Var(r_M) = 0.5$
- Value of equity, E = RM500,000,000

Using the template given in the Appendix to model:

a. the cost of equity for Ivanka Company.

(8 marks)

b. the weighted average cost of capital (WACC) for Ivanka Company.

(6 marks)

c. Suppose Ivanka Company issues its stocks in an initial public offering (IPO). After the IPO the company has 3,000,000 shares, worth RM20 each. Model the WACC for Ivanka Company after the IPO?

(9 marks)

Continued...

QUESTION 4 (25 MARKS)

Susan Loh, the chief financial officer of Pauxin Holding Company is preparing a forecast of net income for the coming year, 2017. She develops her pro-forma statement of profit and loss based on the company's statement of profit and loss given in the Appendix.

Susan Loh forecasts that Pauxin Holding Company's sales will be RM5 million. Interest expenses are expected to be the same amount as this year. The company will pay cash dividends of RM250,000 during 2017. Use the per cent of sales method to estimate the company's net income and prepare a pro forma statement of profit and loss for year ended 2017.

End of Page

APPENDIX: TEMPLATES FOR ALL QUESTIONS

The given templates in this Appendix are:

- 1. to be followed exactly when carrying out your modeling in the Microsoft Excel for all of the four given questions.
- to be used to record answers produced in your Excel spreadsheets for all of the four given questions as follows:
- Each resulted value should be recorded on the correct cell as it appears on your actual excel spreadsheet in the Microsoft Excel.
- Formula for each recorded value should be recorded in the 'Excel Formula' column.
- Formulas for more than one columns can be entered in one single excel cell under the 'Excel Formula' 's column and spaced from one another with a slash sign "/".

ANSWER FOR QUESTION 1 (25 MARKS):

		CO	U
-	INPUT ZONE		
7	Current date		
ന	Previous interest payment date	-	
4	Next interest payment date		
'n	Face Value (\$)		
മ	6 Annual coupon rate		
<u> </u>	7 Bond price		

ANSWER FOR QUESTION 1 (25 MARKS) (CONTINUED...):

9MODELING ZONEEXCEL FORMULA10Semi-annual coupon (\$)(\$)11Days since last coupon date(\$)12date and next coupon date(\$)13Answer for 2a:(\$)14Accrued interest(\$)15Answer for 2b:(\$)16Invoice price (bond price + accrued)(\$)		A	а	J	Q
accrued)	Ó	MODELING ZONE		EXCEL FORMULA	
accrued)	10	Semi-annual coupon (\$)			(1 marks)
accrued)	Ħ	Days since last coupon date			(1 marks)
accrued)	2) 1 (6) (1)	Days between last coupon	·		
accrued)	7	date and next coupon date			(2 marks)
accrued)	13	Answer for 2a:			
accrued)	7	Accrued interest			(2 marks)
accrued)	15	Answer for 2b:			
	16				(2 marks)

ANSWER FOR QUESTION 1 (25 MARKS) (CONTINUED...):

ANSWE	ANSWER FOR QUESTION I (25 MARKS) (CONTINUED):	JNTINUED):		A STATE OF THE STA
	A		U	Δ
17 An	Answer for 2c:			
		Bond		
18	Date	cash flow	EXCEL FORMULA	- game accessed to the second of the second
19	19-Jul-17			(2 marks)
20	1-Dec-17			(5 marks)
N	1-Jun-18			
2	1-Dec-18			Common contract that the second contract the contract that the con
23	1-Jun-19			The bright of the best of the bright of the
24	1-Dec-19			
25	1-Jun-20			,
26	1-Dec-20			
27	1-Jun-21			
28	1-Dec-21			
29	1-Jun-22			
30	1-Dec-22			
31	1-Jun-23			
32	1-Dec-23			(2 marks)
33	YTM (XIRR formula)			(4 marks)
34	YTM (YIELD formula)			(4 marks)
				The contract of the contract o

ANSWER FOR QUESTION 2 (25 MARKS):

4	A	ഫ	U	
ᠸ┈┤	1 INPUT ZONE	Marin and Andrew Palacon		
\sim	Base year FCF			
ćΩ	WACC			The second secon
4	4 High growth rate, g _{high}			
2	5 Normal growth rate, g _{normal}			
9	6 Number of high growth years			
1	Debt			
00	8 Cash			
6	Number of shares, end 2016			
C.				And the state of t

ANSWER FOR QUESTION 2 (25 MARKS) (CONTINUED...):

A)	
10		
11 MODELLING ZONE	EXCEL FORMULA	
12 Term 1 factor: (1+ghigh)/(1+WACC)		(3 marks)
on en		The said friends as a said fold of the said or may a decident from more
14 Term 1: PV of high-growth cash flows		(3 marks)
15 Term 2: PV of normal-growth cash flows		(3 marks)
16 Enterprise value		(3 marks)
17 Add cash		(2 marks)
18 Subtract debt		(2 marks)
19 Value of equity		(2 marks)
20		
21 Share value		(2 marks)
23 b. If cash flows occur in mid-year, then:		
24 Value of equity		(3 marks)
25 Share value		(2 marks)
26		The control of the co

ANSWER FOR QUESTION 3 (25 MARKS):

2										
В								efore the IPO		
1 INPUT ZONE	2 E(r _M)	3 r _D	4 T _C	5 Cov(r _{ivanka} ,r _M)	Q 9	7 Var(r _M)	8 Γ F	9 Value of Equity E before	10 Share Price	11 Number of Shares

ANSWER FOR QUESTION 3 (25 MARKS) (CONTINUED...):

ANSWER FOR QUESTION 3 (23 MARKS) (CONTINUED):	
A	C
7	
13 MODELLING ZONE	EXCEL FORMULA
14 A. Finding the company cost of equity.	
15 8	(4 marks)
16 LE	(4 marks)
À	
18 B. Finding the company WACC.	
61	
20 V=D+E	(3 marks)
21 WACC	(4 marks)
27	
23 C. WACC after the IPO	
24	
25 Value of Equity after the IPO	(3 marks)
26 V=D+E	(3 marks)
27 WACC	(4 marks)

ANSWER FOR QUESTION 4 (25 MARKS):

 1 INPUT ZONE 2 Estimated Sales for 2017 3 Taxes 4 Dividend for 2016 5 Dividend for 2017 			m	2
типовите на положения по	, 	INPUT ZONE		
Taxes Dividend for 20 Dividend for 20	N	Estimated Sales for 2017		
Dividend for 20 Dividend for 20		Taxes		
	L/)	Dividend for 2017		

OCTOBER 2017

ANSWER FOR QUESTION 4 (25 MARKS) (CONTINUED...):

7 MODELLING ZONE Statement of Profit and Loss of Pauxin 8 Holding Company for the Year Ended 9 (In RM) 10 December 2016 % of sales December 2017 E) 11 Sales 4,000,000 A,000,000 A 12 Less: Cost of goods sold 2,560,000 A A 13 Gross Profit 1,440,000 A A 14 Less: Operating expenses 350,000 A A 15 and taxes 1,090,000 A A 16 Less: Interest expense 100000 A A 17 Farning before taxes 990,000 A A 18 Less: Taxes 346,500 A A 19 Earnings after taxes 643,500 A A 20 Less: Cash Dividends 23,200 A A		A	£	C		**************************************	للنا	hydra.
Statement of Profit and Loss of Pauxin Holding Company for the Year Ended (In RM) Sales 4,000,000 % of sales December 2017 Sales 4,000,000 Cost of goods sold 2,560,000 Cost of goods sold 2,560,000 Gross Profit 1,440,000 Cost of goods sold 2,560,000 Cost of goods sold Cost of goods sold <th>MOI</th> <th>DELLING ZONE</th> <th>ent des printerentes ettern (, , , , , , , , , , , , , , , , , ,</th> <th>experimental states that was party an environment of descriptions than</th> <th>Made a series de la constant per est de l'acceptant de la constant de la constant de la constant de la constant</th> <th></th> <th></th> <th></th>	MOI	DELLING ZONE	ent des printerentes ettern (, , , , , , , , , , , , , , , , , ,	experimental states that was party an environment of descriptions than	Made a series de la constant per est de l'acceptant de la constant de la constant de la constant de la constant			
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Sales 4,000,000 % of sales December 2017 Sales 4,000,000 2,560,000 2,560,000 Gross Profit 1,440,000 2,560,000 2,560,000 Less: Operating expenses 350,000 2,560,000 2,560,000 Earning before interest 1,090,000 2,560,000 2,560,000 2,560,000 Earning before taxes 990,000 2,560,000 2,			For all the production provided the first of the fill of the production of the first of the production of the fill of the fill of the fill of the production of the fill of th	(FR RM.)	an angus and an annual contraction of the contracti	enderformen en de de de de de de deste de de deste de de	and course for the following district district department for the course duration has been departmented and the	
Sales Less: Cost of goods sold Gross Profit Less: Operating expenses Earning before interest and taxes Less: Interest expense Earning before taxes Less: Taxes Less: Cash Dividends	<u> </u>	·	December 2016		December 2017	EXCEL FC	EXCEL FORMULA	
Less: Cost of goods sold 2 Gross Profit 1 Less: Operating expenses 1, and taxes Less: Interest expense 1, ess: Interest expense 2 Earning before taxes 2 Less: Taxes 2 Less: Cash Dividends 2 Less: Cash Dividends 2	1 Sales	٨.	4,000,000					(1 mark)
Gross Profit Less: Operating expenses Earning before interest and taxes Less: Interest expense Earning before taxes Less: Taxes Less: Cash Dividends		: Cost of goods sold	2,560,000			_		(3 marks)
Less: Operating expenses Earning before interest 1, and taxes Less: Interest expense Earning before taxes Less: Taxes Earnings after taxes Less: Cash Dividends		s Profit	1,440,000			_		(2 marks)
Earning before interest and taxes Less: Interest expense Earning before taxes Less: Taxes Earnings after taxes Less: Cash Dividends		Operating expenses	350,000					(3 marks)
and taxes Less: Interest expense Earning before taxes Less: Taxes Earnings after taxes Less: Cash Dividends	Earni	ing before interest	1,090,000					
Less: Interest expense Earning before taxes Less: Taxes Earnings after taxes Less: Cash Dividends		taxes				/	/	(2 marks)
Earning before taxes Less: Taxes Earnings after taxes Less: Cash Dividends	5 Less:	Interest expense	100000					(2 marks)
Less: Taxes Earnings after taxes Less: Cash Dividends		ing before taxes	000'066			_	_	(3 marks)
Earnings after taxes Less: Cash Dividends		Taxes	346,500			/		(3 marks)
		ings after taxes	643,500					(2 marks)
) less:	Cash Dividends	23,200				_	(2 marks)
21 Retained Earnings 620,300 /		ined Earnings	620,300			/	/	(2 marks)

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